

CLAIMS

What is claimed is:

1. A lubrication system for use with a surgical instrument, comprising:
a first fluid path comprising a first fluid inlet, and a first fluid outlet wherein the first fluid outlet does not contact a lubricant; and
a second fluid path comprising a second fluid inlet extending into the lubricant, a filtering system, and a controlled path, wherein a pressurized fluid flows through the first fluid path, causing at least a portion of the lubricant to flow through the second fluid path.
2. The lubrication system of claim 1 wherein the controlled path is a capillary tube.
3. The lubrication system of claim 1 wherein the first fluid inlet has a lower altitude than that of the controlled path.
4. The lubrication system of claim 3 wherein the first fluid outlet has a higher altitude than that of the second fluid inlet.
5. The lubrication system of claim 1 further comprising a large-diameter channel wherein the pressurized fluid flows from the large-diameter channel into the first fluid path.

6. The lubrication system of claim 1 wherein the second fluid path further comprises a small-diameter channel.
7. The lubrication system of claim 1 wherein the first fluid path further comprises a distribution route between the first fluid inlet and the first fluid outlet.
8. The lubrication system of claim 1 wherein the filtering system comprises a screen mesh.
9. The lubrication system of claim 8 wherein each opening of the screen mesh is smaller than the opening of the controlled path.
10. The lubrication system of claim 1 wherein the pressurized fluid enters into the second fluid outlet if a seal around the second fluid outlet fails.
11. The lubrication system of claim 1 wherein the pressurized fluid comprises pressurized air.
12. The lubrication system of claim 1 wherein the lubricant comprises oil.
13. A surgical system comprising a pneumatically powered surgical instrument with a motor, a pneumatic supply system for selectively providing a pressurized fluid to the

motor, and a lubrication system connected to the pneumatic supply system for providing lubrication to the motor, wherein the lubrication system comprises:

a first enclosure positioned inline with a selectively pressurized fluid path of the pneumatic supply system, the first enclosure comprising a large-diameter channel and a small-diameter channel;

a second enclosure forming a chamber for containing a lubricant;

a first fluid path comprising a first fluid inlet coupled with the large-diameter channel, and a first fluid outlet extending into a first portion of the chamber; and

a second fluid path comprising a second fluid inlet extending into a second portion of the chamber, a controlled path, and a second fluid outlet coupled with the small-diameter channel,

wherein, when the pneumatic supply system provides the pressurized fluid to the motor, at least a portion of the pressurized fluid flows from the large-diameter channel, through the first fluid path, and into the chamber, thereby causing at least a portion of the lubricant to flow through the second fluid path and into the small-diameter channel, and

wherein the first and second portions of the chamber are positioned so that lubricant moves away from the first portion and towards the second portion even when the pneumatic supply system is not providing the pressurized fluid to the motor.

14. The surgical system of claim 13 wherein the controlled path is a capillary tube.

15. The surgical system of claim 13 wherein the first fluid outlet does not contact the lubricant.

16. The surgical system of claim 13 wherein the lubrication system further comprises:

a cross-over mechanism for positioning the first outlet closer to the second outlet than to the first inlet, and for positioning the second inlet closer to the first inlet than to the second outlet.

17. The surgical system of claim 13 wherein the second fluid path includes a filtering system.

18. The surgical system of claim 17 wherein the filtering system is a screen mesh and each opening of the screen mesh is smaller than an opening of the controlled path.

19. An inline oiler for use with a pneumatically powered surgical instrument, comprising:

a first inlet for receiving pressurized air;

a first outlet for providing the pressurized air into an enclosure wherein the enclosure comprises a lubricant;

a second inlet for receiving at least a portion of the lubricant wherein the second inlet extends into the lubricant; and

a capillary tube connected to the second inlet, the capillary tube having a predetermined inside diameter and a predetermined length for controlling a flow of the filtered lubricant.

20. The inline oiler of claim 19 wherein the predetermined inside diameter is about 1/5000 inch, and the predetermined length is about 1/10 inch.